Water Resource Issues and Opportunities in South Carolina

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Water Resources Management

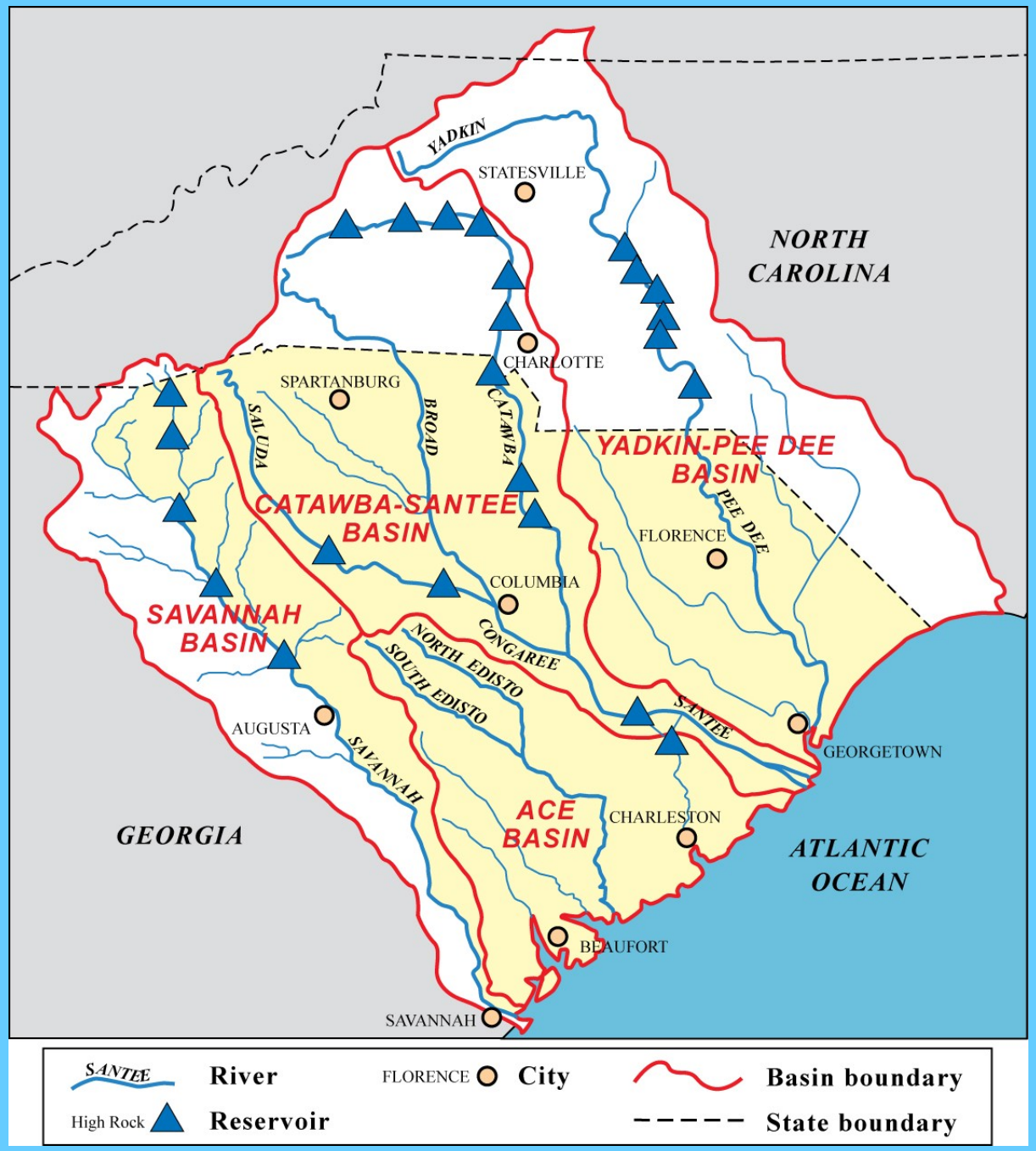
- South Carolina generally has an abundance of ground and surface water
- Problems arise when different water users compete for the same water, or when droughts create water shortages
- Increasing population and industrial growth will increase demand for this finite resource
- Water resource managers should maximize water availability and protect the resource for future generations

Water Resource Issues

- Reservoirs control many SC rivers
- Interstate competition for shared water
- Competing demands for finite resources
- Overpumping of ground water
- Water quality problems
- Variations in water availability

Water Resource Opportunities

- FERC relicensing of reservoirs
- Interstate agreements and cooperation
- Increased regulation of ground water pumping
- Improved knowledge of our resources
- More effective management strategies


YADKIN
STATESVILLE
NORTH CAROLINA
CHARLOTTE
SPARTANBURG
SALUDA
BROAD
CATAWBA
YADKIN-PEE DEE BASIN
CATAWBA-SANTEE BASIN
PEE DEE
FLORENCE
COLUMBIA
SAVANNAH BASIN
CONGAREE
NORTH EDISTO
SOUTH EDISTO
SANTEE
AUGUSTA
SAVANNAH
GEORGETOWN
ACE BASIN
CHARLESTON
GEORGIA
ATLANTIC OCEAN
BEAUFORT
SAVANNAH
SANTEE River
High Rock Reservoir
FLORENCE City
Basin boundary
State boundary

FERC Relicensing

- FERC hydropower licenses last 30 to 50 years
- Relicensing presents opportunities for South Carolina to improve stream flow rates and patterns in order to protect fish and wildlife habitats and public water supplies
- New licenses can help to ensure adequate stream flows during droughts

Water Resource Issues with Georgia

- Savannah River water quality
- Savannah River water quantity
- Saltwater intrusion into Upper Floridan aquifer

Gov. Sanford created the Savannah River Committee to negotiate with Georgia on critical issues concerning our shared water resources

Savannah River Water Quality

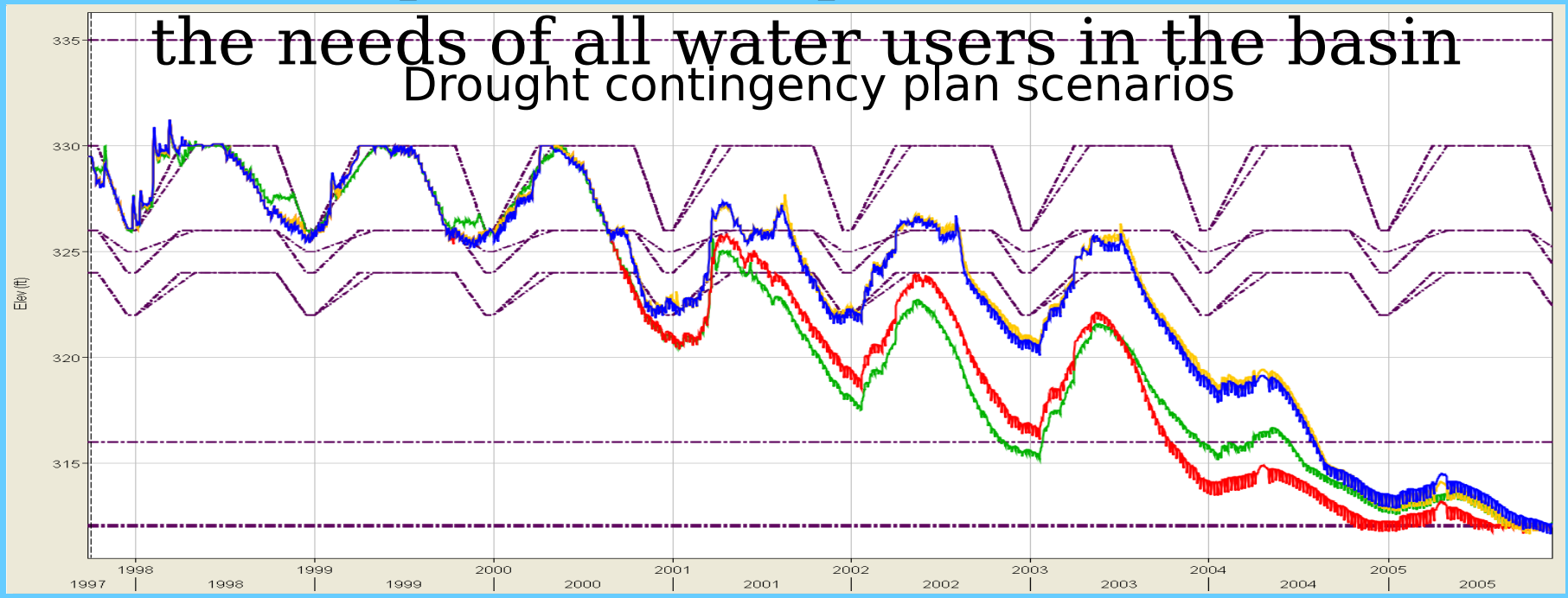
- The amount of waste currently discharged into the Savannah River is over the limit that the river can tolerate
- Georgia is responsible for 97% of the waste discharged into the river
- What is South Carolina’s fair share of the waste-load capacity of the river?

Savannah River Water Quantity

- Flow in the Savannah River is primarily controlled by the Corps of Engineers reservoirs
- Both states have an interest in an operational plan that is more responsive to water-supply needs
- The Savannah River is attractive as a source of water for future growth of areas both inside and outside the basin

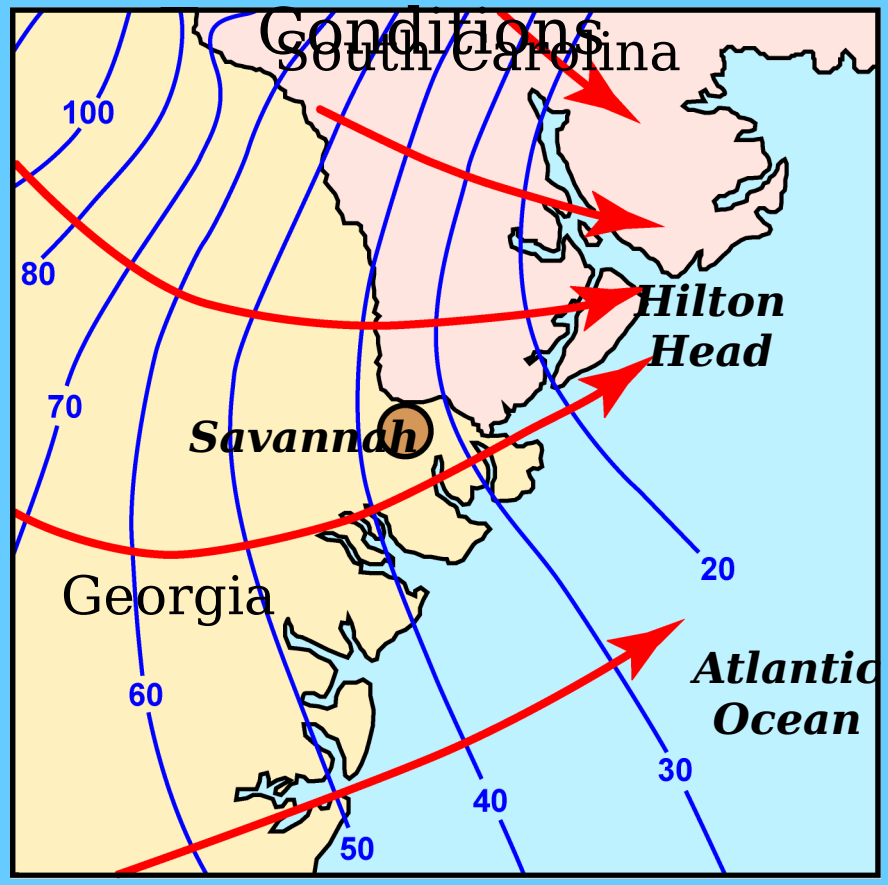
Savannah River Basin Model

- Developed cooperatively by SC, GA, and COE
- Will lead to improved drought planning
- Will help reservoir operators better meet the needs of all water users in the basin

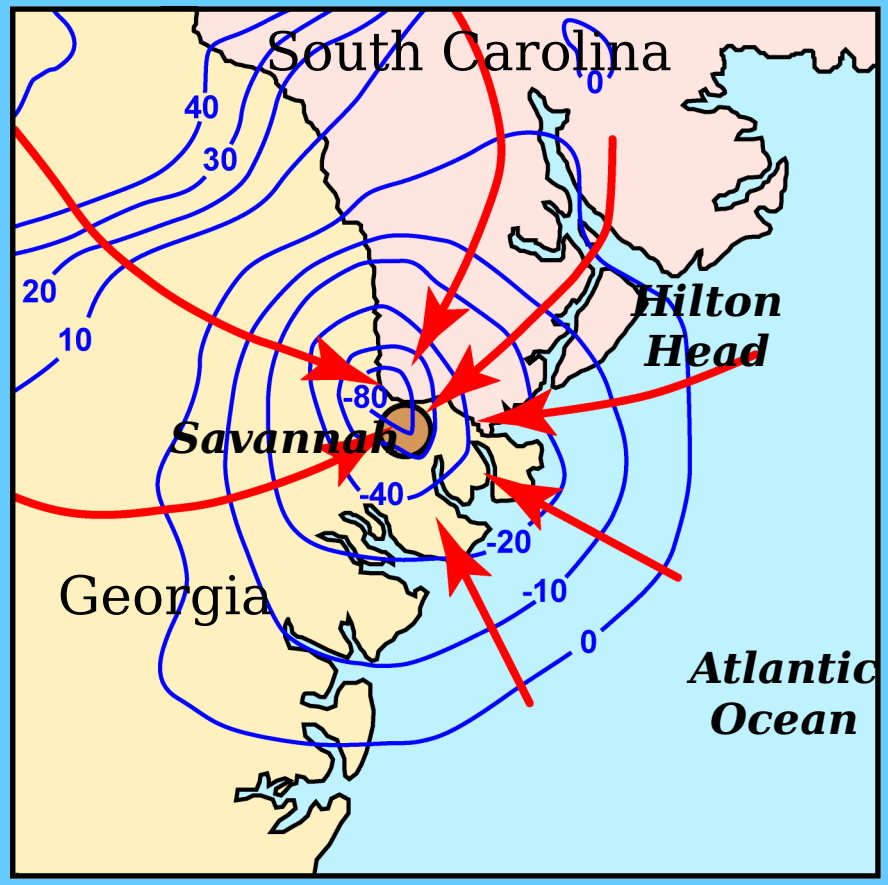


Groundwater levels and flow directions in the Upper Flor

Predevelopment Conditions



Modern Conditions



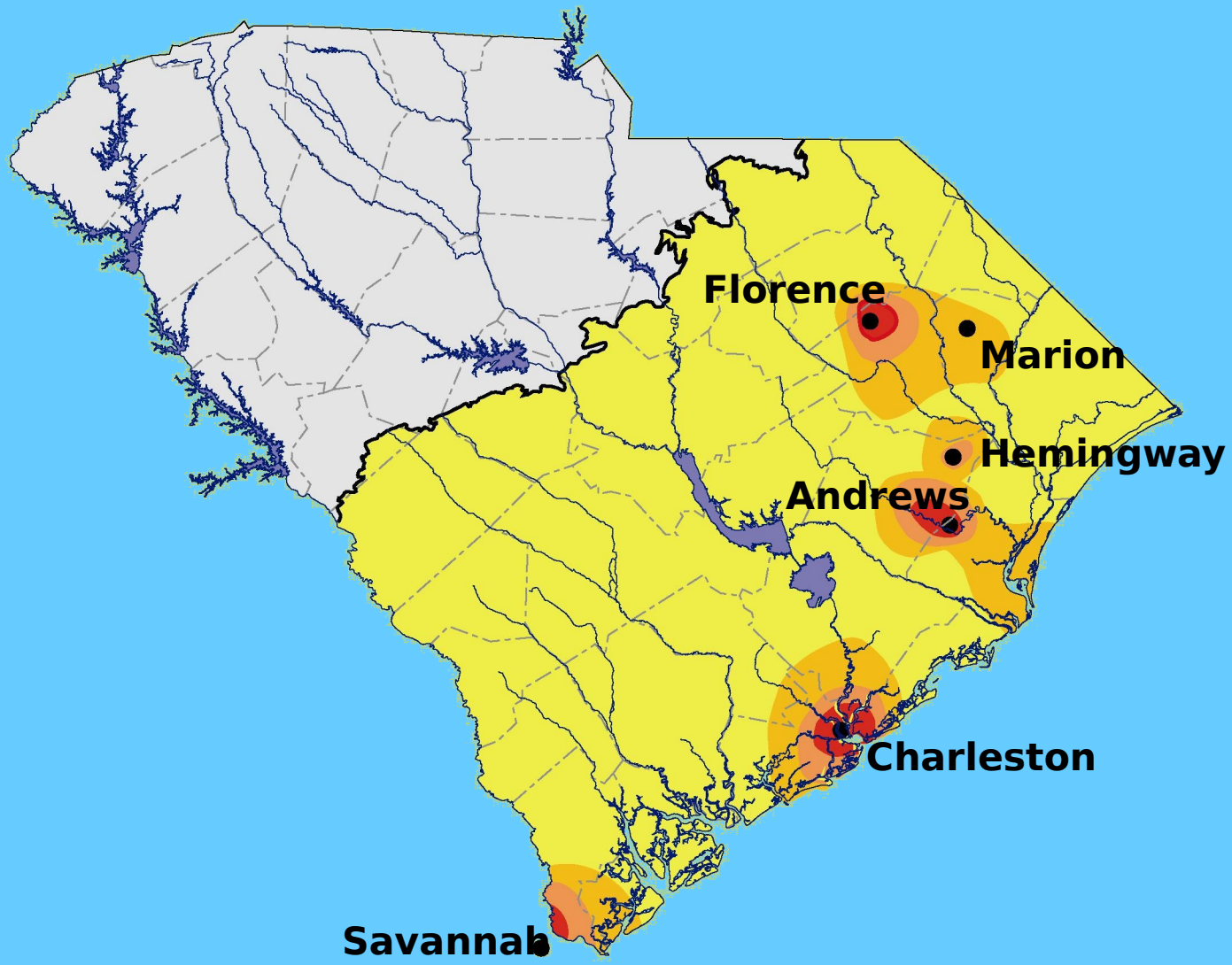
Direction of groundwater flow

10 Elevation of water level (feet)

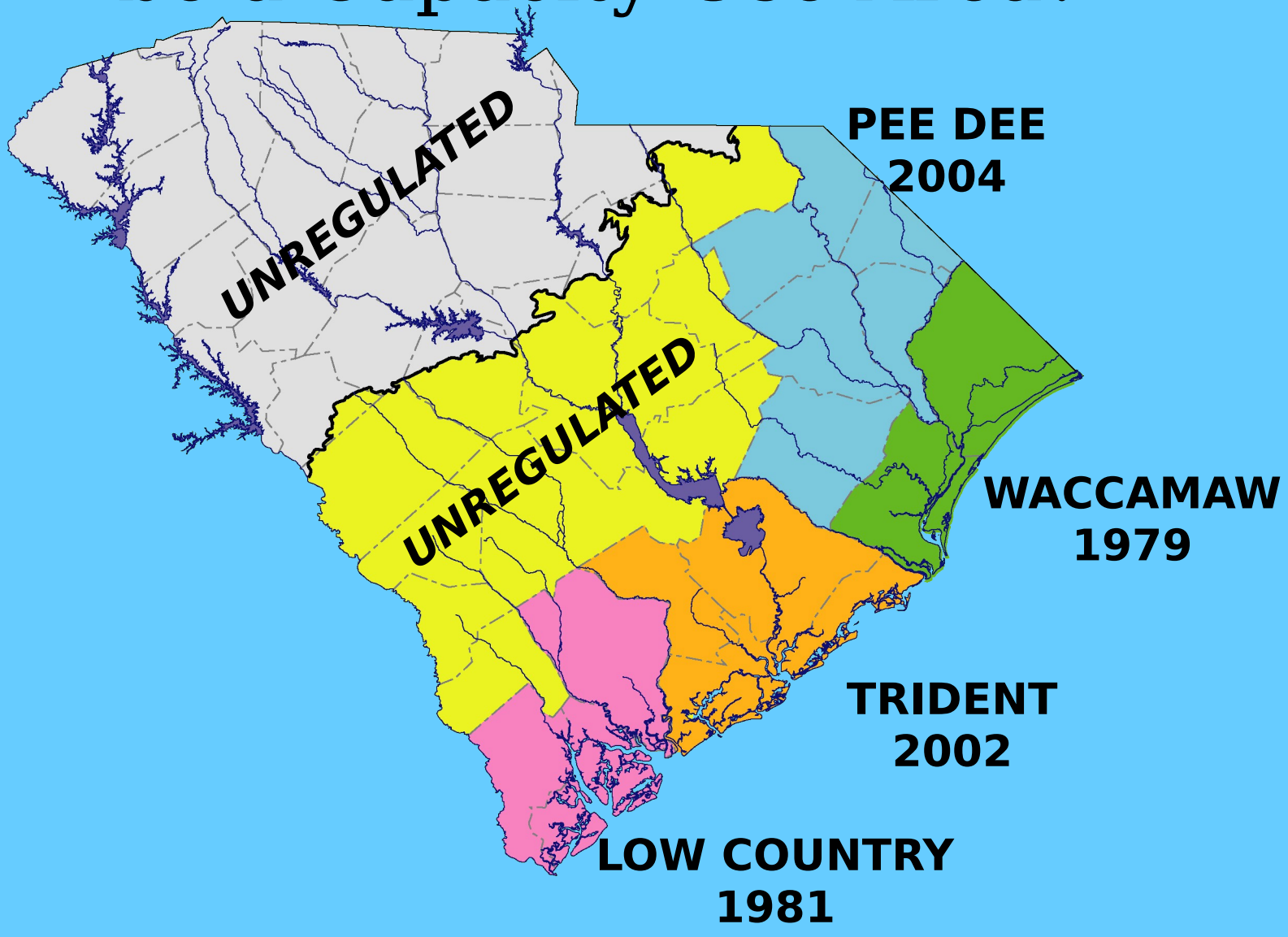
Saltwater intrusion into the Upper Floridan aquifer

- Large cone of depression centered at Savannah
- Saltwater contamination of the aquifer at Hilton Head Island
- SC required 35% reduction in pumping
- SC utilities spent more than $90 million developing alternative water supplies
- Georgia officials no longer trying to stop saltwater intrusion at Hilton Head

Major cones of depression in South C

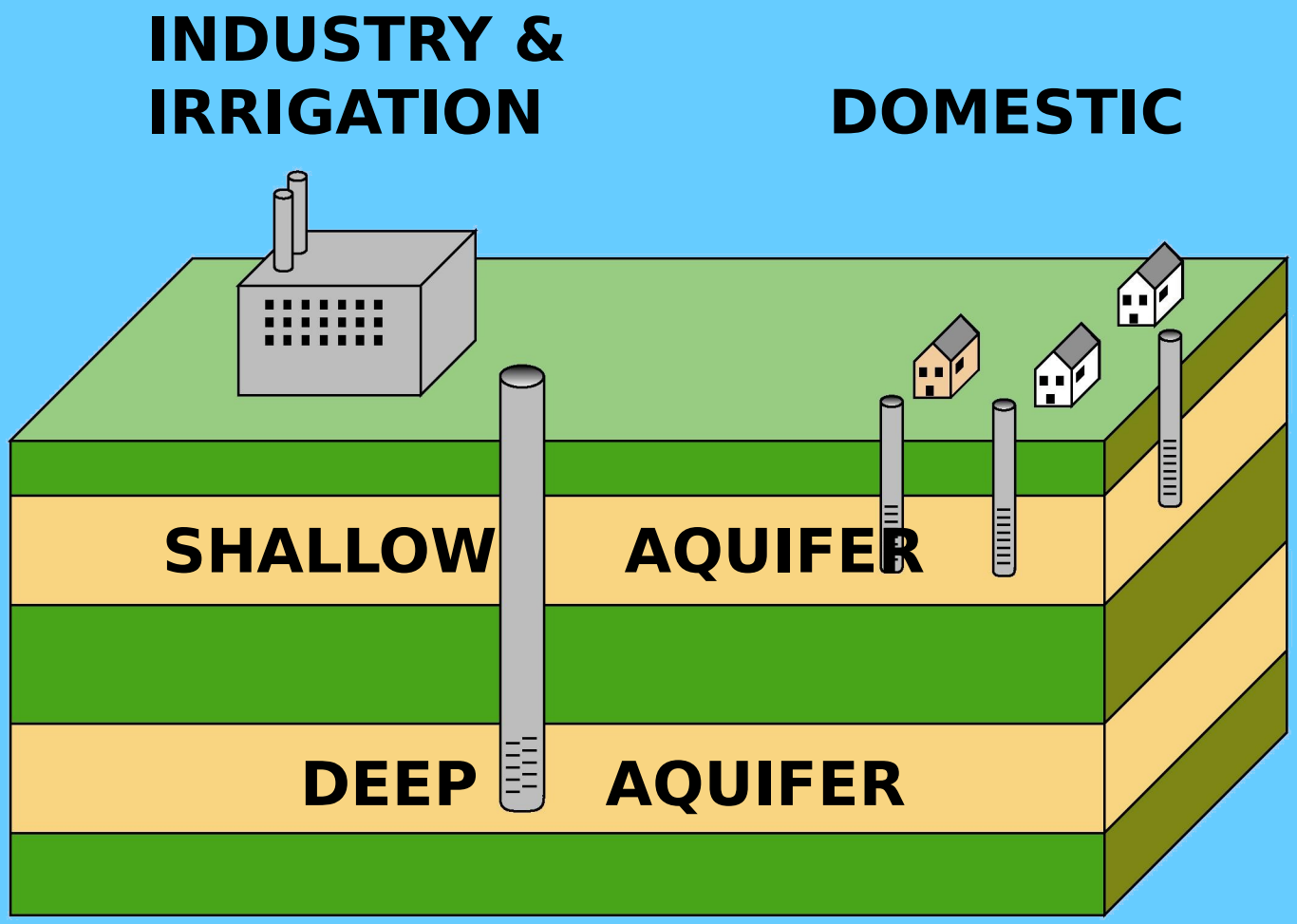


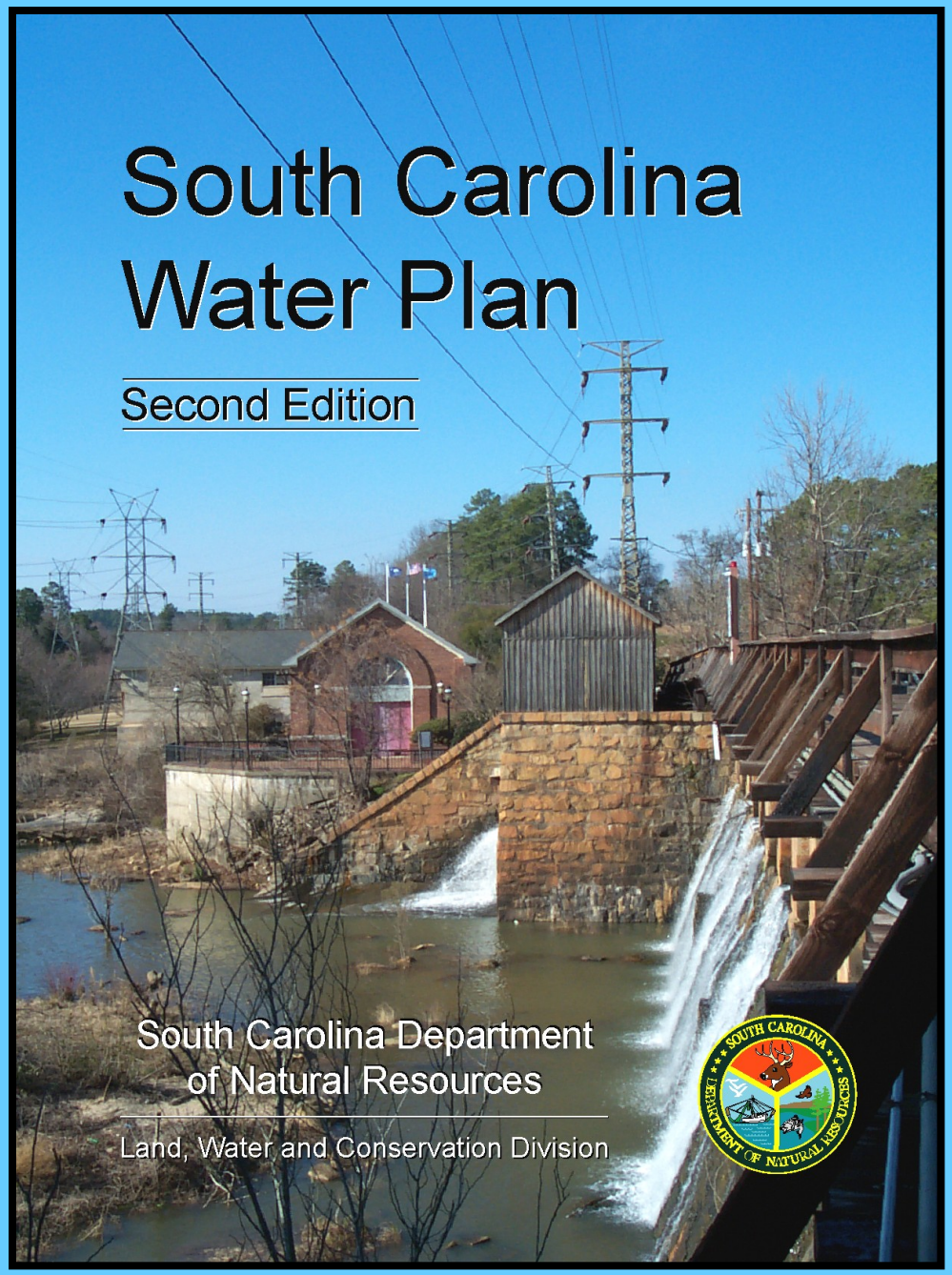
Should the entire Coastal Plain be a Capacity Use Area?



Ground Water Allocation

Should aquifers be designated for specific uses?

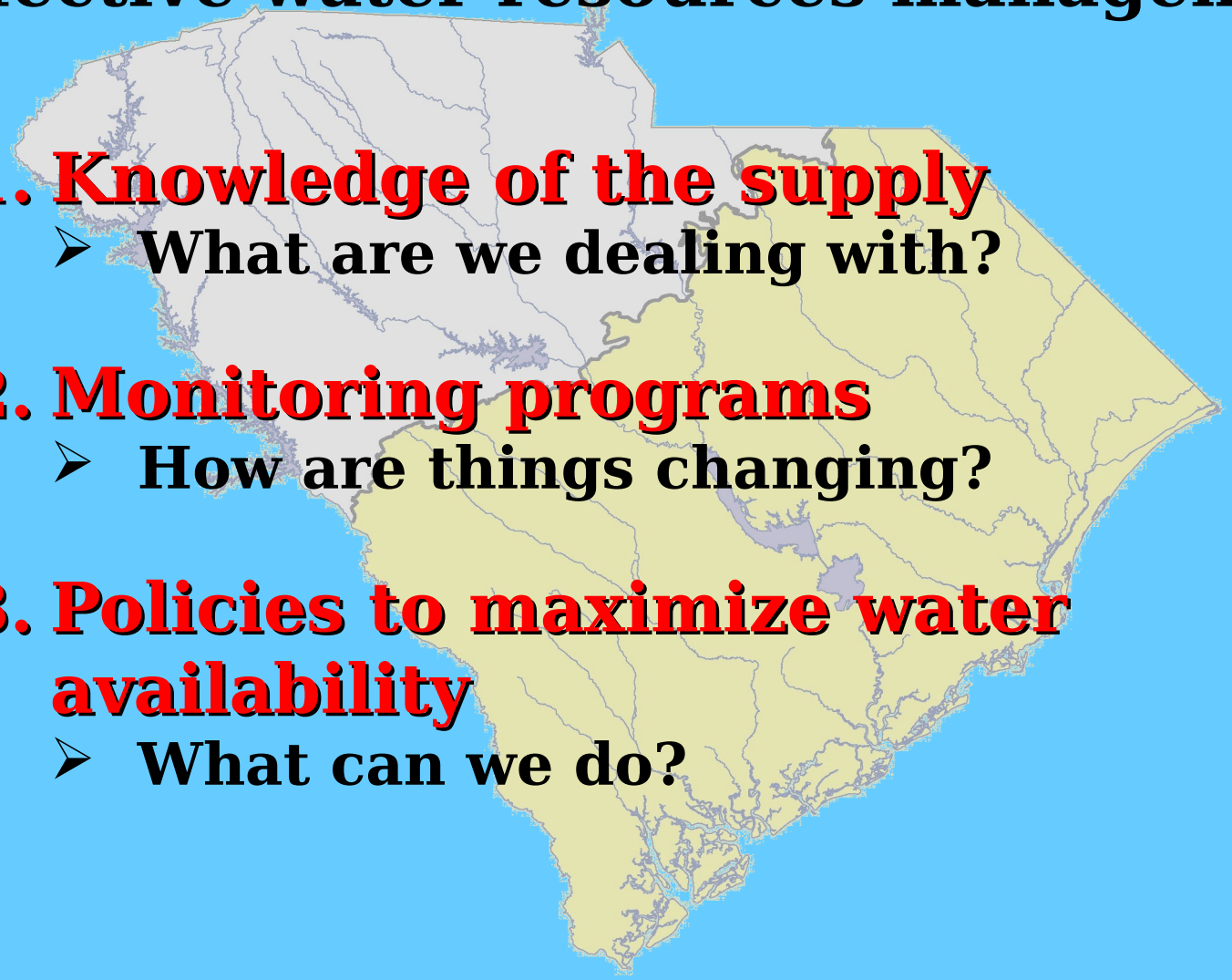




An “excellent and progressive water plan for South Carolina. It is an excellent example for us all.”

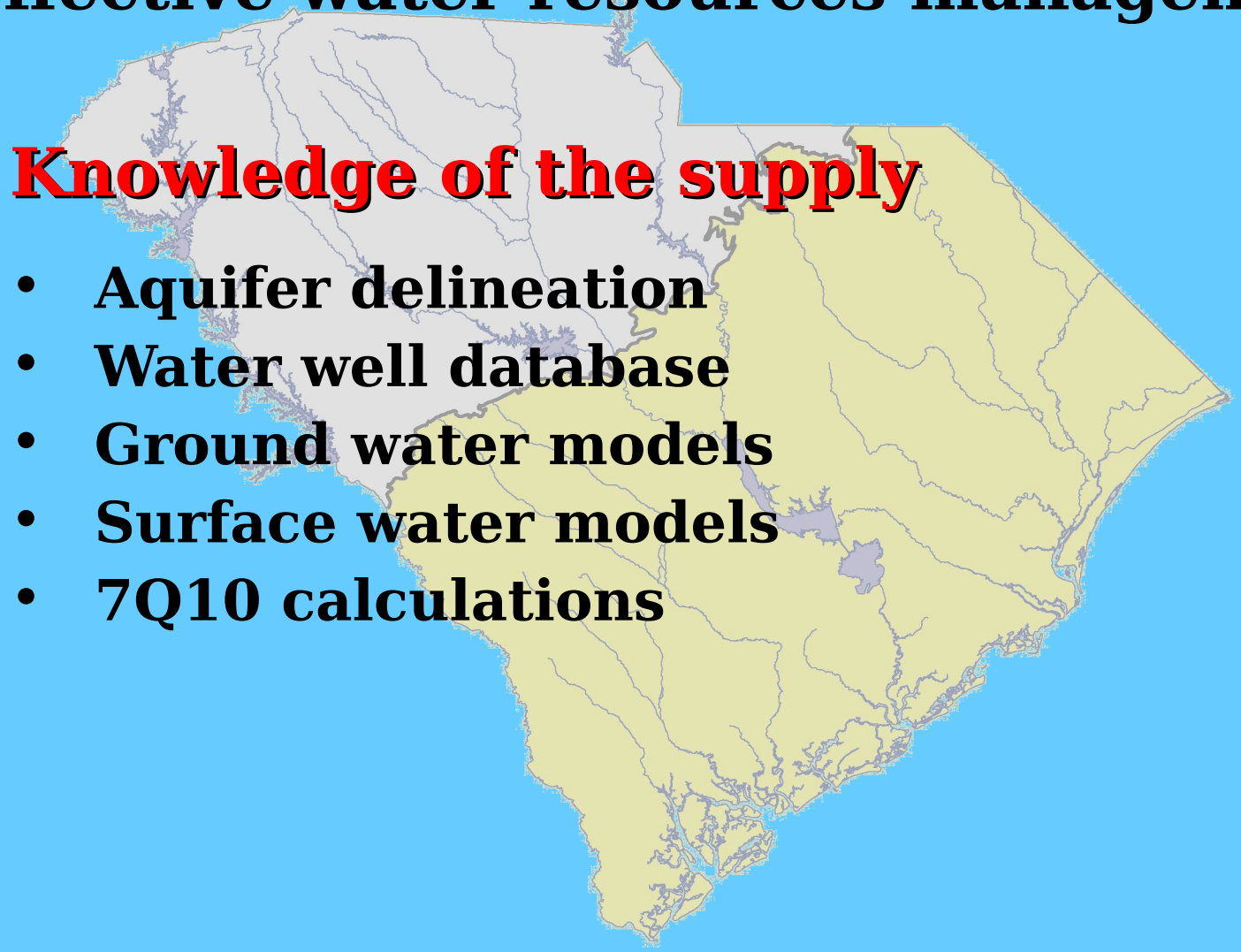
— Gene Whitney, White House Office of Science and Technology Policy

Effective water resources management re



1. **Knowledge of the supply**
   - What are we dealing with?
2. **Monitoring programs**
   - How are things changing?
3. **Policies to maximize water availability**
   - What can we do?

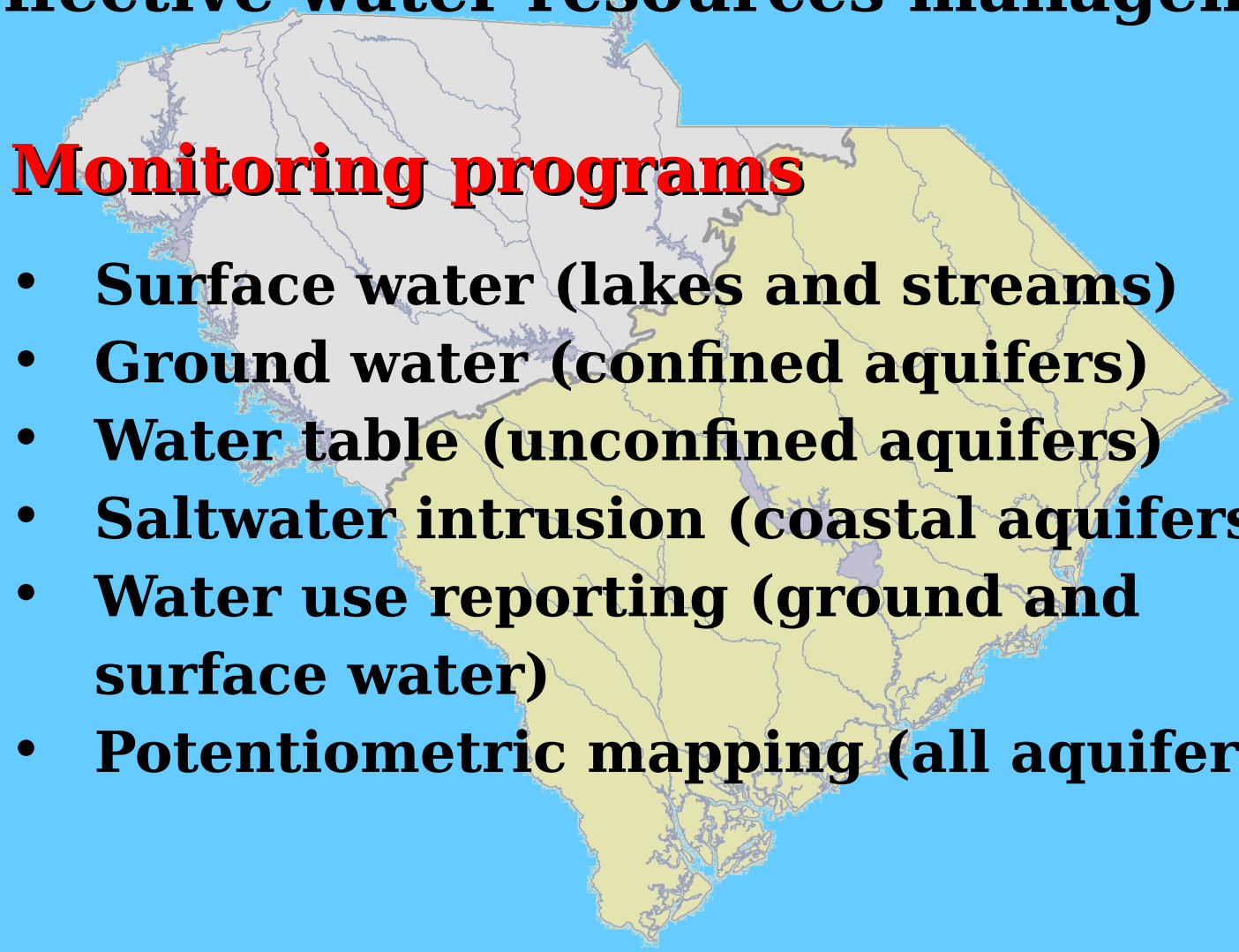
Effective water resources management re



Knowledge of the supply

- Aquifer delineation
- Water well database
- Ground water models
- Surface water models
- 7Q10 calculations

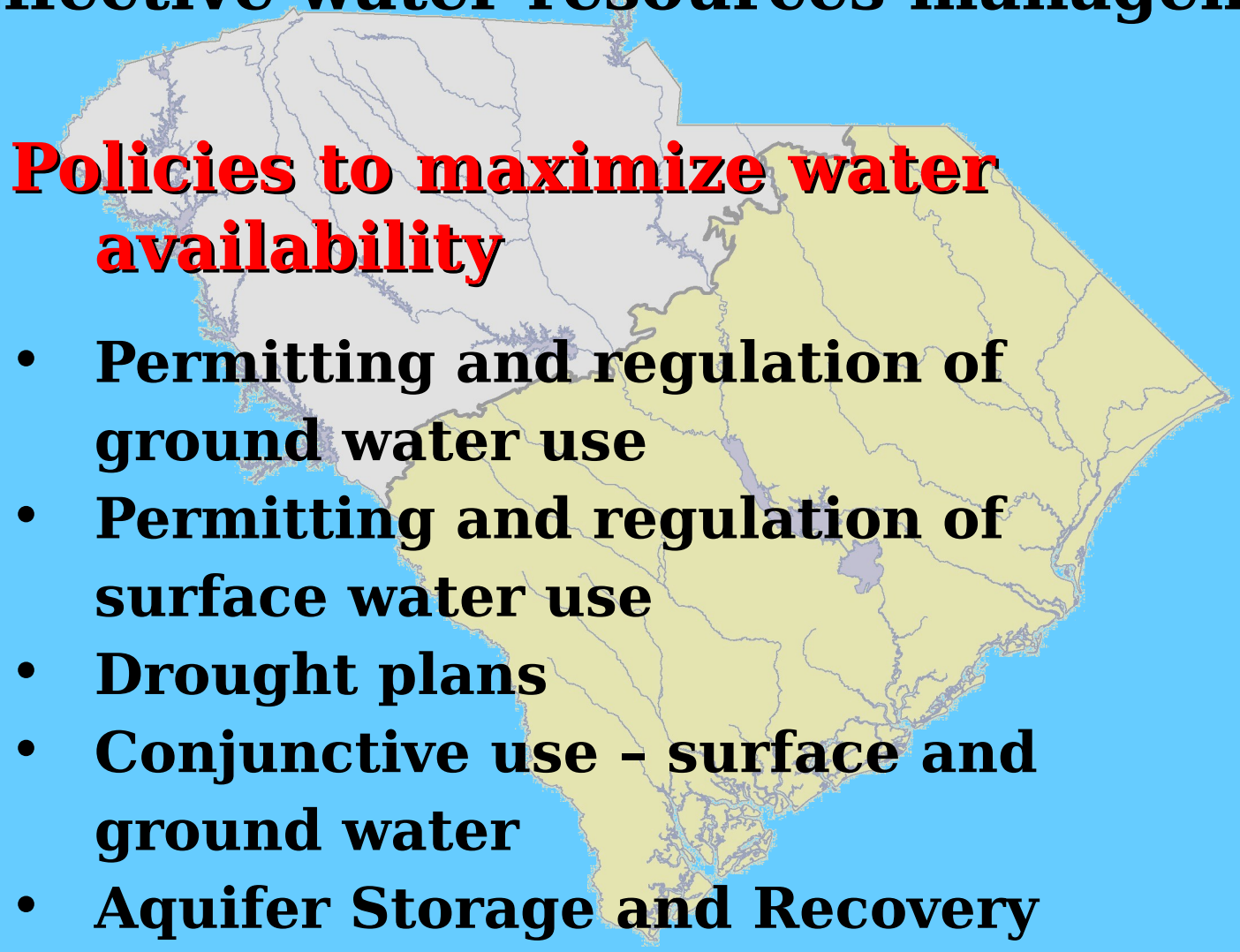
Effective water resources management re



Monitoring programs

- Surface water (lakes and streams)
- Ground water (confined aquifers)
- Water table (unconfined aquifers)
- Saltwater intrusion (coastal aquifers)
- Water use reporting (ground and surface water)
- Potentiometric mapping (all aquifers)

Effective water resources management re



Policies to maximize water availability

- Permitting and regulation of ground water use
- Permitting and regulation of surface water use
- Drought plans
- Conjunctive use – surface and ground water
- Aquifer Storage and Recovery programs
- Protect aquifer recharge areas

Some issues remain unresolved

- Pumping from Upper Floridan aquifer
- Savannah River wasteload allocation
- Reservoir operations
- Ground and surface water allocation
- Wetlands protection and stream restoration
- Coastal hydrology

Working Together for the Public Interest

"The effective management of our State's water resources is beyond the scope of any one organization or agency and will require cooperation and shared responsibility among federal, state, and local agencies, and public and private parties."

— *South Carolina Water Plan,* 2nd edition